

**DISCRETE AMPLITUDE CALIBRATION OF OSCILLATORS IN  
FREQUENCY SYNTHESIZERS****ABSTRACT**

5           In one embodiment, this disclosure describes a frequency synthesizer for  
use in a wireless communication device, or similar device that requires precision  
frequency synthesis but small amounts of noise. In particular, the frequency  
synthesizer may include a phase locked loop (PLL) and an integrated voltage  
controlled oscillator (VCO). The frequency synthesizer may implement one or  
10 more amplitude calibration techniques prior to enabling the PLL. For example,  
an amplitude calibration unit may be used to selectively activate switched unit  
current sources within a tail current source of the VCO. In this manner, the  
amplitude the signal generated by the oscillator can be adjusted without requiring  
closed-loop amplitude monitoring or control.